COOP'S TECHNOLOGY DIGEST

-A Timely Report on The World of Communications-

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-IN THIS ISSUE-

TVNZ's attempt to stay alive and independent -p. 2; Where logic went wrong -p. 4; TVNZ's dilemma -p. 5; Teletext not included -p. 6; Prime to be on 12.456 with TVNZ? -p. 7; New Sky Digital remote configuration -p. 7; Public education about what digital means -p. 8; Sky TV aims to break even -p. 10; Sky adding BBC world 24 hours -p. 10; Sky becomes background music supplier -p. 10; Saturn/Telstra rolls back rollout -p. 11; Austar parent UGC defaults on interest payment - p. 11; Telstra acquires Clear -p. 12; Austar counting the pennies remaining - p. 12; BBC-ITV plan to salvage FTA digital TV -p. 12; Interactivity hype rolls on -p. 14; DVD encryption cracking system - court ruling against movie rights owners -p. 15; USA networks sue hard drive recorder manufacturer - p. 16; State-of-the-art: Why hard drives will replace tape -p. 18; Echostar claims to be largest distributor of PVR consumer hardware -p. 19; Sony closes down HDTV film conversion facility -p. 20; USA GPS system under 911 attack - p. 20; IHUG increases thruput -p. 22; Niue will build own satellite -p. 22; Tonga's latest telecom scam -p. 22; Announcement: Issue #91 will be our last -p. 22;

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TVNZ's attempt to stay alive and independent

On December 1st TV One and TV2 became a part of the Sky NZ operated "stable of digital television services" available throughout all of New Zealand (and to a few off shore locations such as Australia's Norfolk Island). As reported in our addendum to the November 02 issue of CTD, Sky NZ and TVNZ finally reached agreement that would allow Sky to provide TV One and TV 2 service. What this does for Sky is inescapable - people who have avoided digital TV subscription from Sky because it lacked TV One and TV2 no longer have that argument. What that does for others is not so totally positive.

1) Independents. A major concern on the part of the non-TVNZ/non-Canwest/non-Sky televisers - people such as Triangle TV in Auckland, channel 7 in Wellington. Through their organisation (Regional Television Broadcasters), the mostly UHF-channeled independents filed a complaint with Sky last June. It seems that when Sky installers do a conversion of a home from Sky terrestrial (which uses UHF channels) to Sky satellite digital, as often as not - some say most of the time - the previously engaged UHF rooftop aerial is left disconnected from the reception system. And/or, when the Sky installer does a reprogramming of the customer's TV or VCR channel tuning, no provision is made for independents such as Triangle.

Already suffering from low audience counts, the independents worried that a home without a functional UHF aerial on the roof connected to the TV reception system was going to further decrease their audience share. Sky's response came in two waves. First, they reminded the independents, "*The UHF rooftop aerial system was installed by Sky and paid for by Sky for their analogue pay-TV customers.*" In effect, if the independents seek viewers, they should work out a way to encourage customers to purchase and install their own aerials. In wave number two, a more cordial response. "*To encourage our technicians to retain the connection to the UHF aerial, perhaps you should somehow arrange to pay them for this step*" noting as well, "*they would appreciate the added income.*"

2) Back-up. With most independents operating on a UHF channel (Wellington being one of a handful of exceptions), this would seem not to effect those on VHF. Think again. With Sky now offering TV One and TV2, in VHF only markets such as Wellington, the identical scenario is likely to repeat on VHF. Wellington is famous (or infamous - a point of view) for really poor television reception. That is one reason why Kiwi Cable (nee Saturn, Telstra/Saturn) invested heavily in cabling the capital city region - thereby providing subscriber homes with their first "clean" TV One, TV2, TV3 and TV4 reception. When Sky digital comes into the home, there no longer remains a reason to leave the VHF rooftop aerial connected; it will/is suffering the same "wham-bam-thank you ma'am" Sky installer rush that permeates installations in other markets. It is not simply a matter of plugging the rooftop VHF (or UHF) aerial back into the Sky set-top box; the technician has to go through a rechanneling exercise as well. Time is money to these guys as they are paid a flat rate for each installation and if they can vacate the premise more quickly by doing less while there, it goes to the bottom line for their business. Wellington's channel 7 independent? No VHF aerial, no reception. Likewise for those rainy days when Sky's digital is wiped out by rain drops, the home has lost the ability to switch back to their rooftop aerial as well.

Into this scenario comes Television New Zealand. Their agreement with Sky NZ places TV One on Sky channel 1, TV2 on Sky number 2 and so on - TVNZ considers this a "win" for the continued availability of the New Zealand "icon service". The agreement also gives Sky a first option on new (not yet functioning) TVNZ services - a 24 hour news service is under study. But in the end, Sky NZ is now the gatekeeper for all television (free to air such as TV One once was and Sky's pay services) in New Zealand. More important, Sky has almost total control over the selection and provision of set-top boxes for the transition to satellite digital now underway here.

CanWest (TV3, TV4) still labours under the fantasy that in the end the Sky distribution of television via satellite is but an interim step, that one fine day we will all awaken to discover terrestrial digital also available. This is an illusion of course - now that Sky NZ is the gatekeeper, there will be no national terrestrial digital service in New Zealand. Not ever. Anyone who believes this is at best a member of then Hugh Railton club (Railton is the NZ guru of radio spectrum use).

Government remains totally unable to focus on this transition issue, somehow believing (perhaps on fractured advice from [the] Ministry of Economic Development - MED) that as digital terrestrial (TV) receivers become commonly available, the "seed" for an eventual transition to COFDM will germinate. "*First the receivers in place and the transmitters will follow*" seems to be the defective reasoning now commonly repeated. Never mind that after two complete years of terrestrial digital availability in the United States the total number of digitally equipped homes remains under 100,000 (or under 0.1 % of all homes). Or that in Australia as the first anniversary of terrestrial digital approaches, the total number of digitally equipped homes remains under 4,000 (0.008%).

Digital for the sake of being digital has turned into a non-event, a near-total failure, even in the UK where terrestrial viewers have been offered *free* digital set-top boxes and *free* digital TV channel service. A little disclosed Government fund in the UK has accumulated UK2.5 billion pounds in reserve money - reserved to pay for new digital reception equipment for the estimated 35-50% of all UK homes who will not on their own even take the steps to sign up for the existing range of free digital reception equipment. The UK government's reasoning is of interest - at some point (PM Tony Blair still says it will occur between 2006 and 2010) when all analogue TV service is shut down, all homes still not digital ready will have to be individually contacted and individually "serviced' with government provided digital receivers and installation.

(Coop's comment: The remarks attributed to various political figures in New Zealand following the announced shotgun marriage of TVNZ and Sky are of interest for perhaps no reason other than their possible historical reflection in the future. Some of the more interesting include:

TVNZ chairman Ross Armstrong has described the deal as a victory for viewers that leaves TVNZ in control of its own destiny. TVNZ hailed the 10-year agreement as a low-cost digital option for the company and a victory for viewers, by giving people access to a better picture and sound quality through digital transmission. Dr Armstrong has spent months rebuilding bridges between Sky and TVNZ, working with Sky chairman Tom Mockridge, to enable TVNZ to piggyback on the Sky platform.

TVNZ chief executive Rick Ellis said the option existed under the agreement with Sky to introduce more free-to-air and interactive content channels. TVNZ would transmit the channels using space on a satellite transponder it was leasing for $2.8 million a year. "*We expect that in 10 years the proliferation of digital devices in New Zealand homes will be such that we will be able to distribute our free-to-air signal in pretty much an unfettered way in the same way that we do with analogue today*," he said.

New Zealand Broadcasting Minister Marion Hobbs has also promised to regulate for open access. A draft cabinet paper has been written. The Government says it will legislate to protect viewers from a digital broadcasting monopoly by Sky TV Broadcasting Minister Marian Hobbs welcomed the agreement but said the Government would not let viewers be restricted to one provider or be at the mercy of their set-top box. She said the Government would legislate for open access, which would allow consumers to buy any set-top box and then subscribe to any pay service and receive all of the free-to-air channels. Mrs Hobbs said the issue was not crucial because no date had been set to switch off the analogue system. [Other countries, such as Spain and Italy, have approached the digital TV market by legislating a single CA system standard in pursuit of an 'open access' market, where any decoder can receive services from any provider.]

National's Broadcasting spokesperson Katherine Rich said, "*Marian Hobbs and TVNZ can try to put a positive spin on the channels going onto Sky but the reality is that TVNZ's poor financial state and prognosis made it clear the company had no other option. This was inevitable for TVNZ after it lost its battle to get support for its own strategy. While Marian Hobbs deludes herself that TVNZ's digital strategy remained intact despite the breakdown of the Telstra Saturn deal, what was presented today is a pale shadow of TVNZ's earlier plans. Sky has won the digital battle. TVNZ meanwhile is entering a new era where it is no longer a broadcaster but just another content provider on the digital platform and just another option on Sky's remote.*"

"*Government meddling and the Charter have caused TVNZ's digital aspirations to amount to nothing,*" ACT Broadcasting Spokesman MP Penny Webster said today. "*New Zealanders will be grateful that a deal between TVNZ and Sky has finally been reached, however it is incredibly frustrating that Government meddling has meant resolution took so long. TVNZ's own digital* *aspirations have been sunk by the Government. The state broadcaster's first plan was rejected. Then Telstra Saturn was scared off by the Charter and Marian Hobbs. This is another example of a government that doesn't comprehend business. Today's announcement is good news for television viewers. Unfortunately, it is bad news for our taxpayer-funded television station,*" Mrs Webster said.

The Regional Television Broadcasters Association of NZ through spokes person Jim Blackman has these concerns: The Minister of Broadcasting's claim that Sky Television's position as the gatekeeper for New Zealand television was not a crucial issue because no date had been set to switch off the analogue system, has been taken to task by the Regional Television Broadcaster's Association of NZ. The organisation, which represents 17 mainly UHF broadcasters around the country, says that her comments do not take into account the possibility that existing UHF antenna feeds may not be reconnected by the installer of the set top box required for satellite reception. The installer could also tune over the UHF channel when making the connection "*In fact, UHF stations in a number of centres have already reported receiving numerous calls from disappointed viewers who can no longer receive their local station once 'digital' television has been installed. These are not isolated in any one area.*" said Jim Blackman, Chair of the Association. "*We are concerned that unless there is an obligation imposed on the supplier of the signal and its installers to ensure existing free to air channels are tuned in at the time of changeover, the monopolistic situation government has said it wishes to avoid, could easily occur.*")

What continues to drive the convoluted reasoning that defies all rationale logic is that each government (at home and abroad) carries a fundamentally flawed belief that if the analogue TV channels can be shut down, hundreds of megahertz of valuable spectrum space can be flogged off in auctions to anxiously awaiting telephone and other carriers. So driven are these government ministers by bureaucrats such as we have at MED that *any view* urging caution and suggesting fundamental mistakes are being made in assuming the terrestrial TV channels have great value is totally discounted. As will this report from CTD be discounted. But, *we are spot on* right in what follows.

Where logic went wrong

In 1989, the new Zealand government decided that radio frequency spectrum was an asset; it could be "sold" (leased, actually) for set periods creating revenue to government. New Zealand was one of (if not "the") first governments to adopt this then radical view. Bureaucrats, professional spectrum people, who were languishing in the bowels of government agencies handing out radio operating licenses to a favoured few, suddenly took on new personal pride. When government decided frequencies = revenue, they naturally turned to these lifetime bureaucrats to advise on which frequencies and how much money might be raised. This elevated the self-importance of the bureaucrats, and gave them a bullet-proof shield of protection against changes in government. Suddenly their travel allowances and staff levels grew, and from hole-in-the-wall existence they rapidly became "managers of government assets." Important managers of government assets.

What happened next was totally predictable. Having been elevated from meat pies to lobster expense accounts these people quickly figured out, "*the more frequencies we can clear for sale to private industry, the more money we will raise for government.*" And the bigger their expense accounts and self importance grew. A note here - this is hardly a reflection on New Zealand's frequency management bureaucrats; the same scenario fits those in Australia, the UK and the USA.

One of the most dollar-promising targets are all of those hundreds of megahertz in the prime VHF (very high frequency) and UHF (ultra high frequency) zones where TV transmitters hold forth. If a city such as Auckland could be reduced from nearly 200 MHz of TV spectrum to as little as 32 MHz, well, there would be 168 MHz of frequencies which government could sell off. Those "clever" bureaucrats who created this scenario in lengthy and distinguished reports would further ensure their down futures as "golden boys" for the government of the day.

But of course there is a fatal flaw in this scenario. First you must convince the populace at large that compressed digital television reception is as good (or better than) the existing analogue services and then on a parallel path coerce the broadcasters who occupy all of these spectrum inefficient analogue TV channels to move (preferably at their own expense) off of analogue to digital. Which brings us back to the very slow take-up of digital television by the population. And it should help you better understand why the UK government is willing, even already "salting away funds," to pay for free digital transition for folks who refuse to make the transition of their own will. UK 2.5 billion pounds?

A mere drop in the bucket against the sums the bureaucrat UK spectrum managers are telling government it will rake in when analogue TV can finally be closed down. Remember that in March of this year the UK sold a modest frequency range in the microwave region of 2 GHz for more than 25 billion pounds. Spending ten percent of that amount to shift the sluggard analogue TV viewers to digital terrestrial is a modest investment against the anticipated UK 100 billion the vacated analogue channels are forecast to raise.

New Zealand? Australia? The USA? It all revolves around the same scenario. First get rid of the analogue TV folks, then grab their previously held frequencies and make big bucks reselling this spectrum to telecommunication firms "waiting in line" to bid.

The history of selling spectrum space in NZ is not very impressive. One of the first "lots" to be sold was the July 1990 tender process for twelve x 8 MHz in the 2300 - 2396 MHz region - the so-called MMDS channels. These 8 MHz wide channels were supposed to be ideal for point to multi-point TV transmission. Some called it "wireless cable." Of those 12 "channels", Telecom NZ acquired 8 for pricing between NZ$56,700 and $211,000 each. Two were acquired by a firm calling itself Multiband, one by Sky and one by BCL. The 20 year terms have now passed the halfway point of expiration and not one of these 8 MHz channels has been put into use. In 1990, these channels were chess pawns in a game of speculation. Sky was new, cable was a distant dream, and promoters saw the MMDS channels as one way to jump-start pay-TV in New Zealand. The government spectrum folks (then headed up by one Wayne Wedderspoon) raised a couple of million dollars, got their feet wet with the auction process, and graduated from fish 'n chips to French menu restaurants on their expense accounts.

But - suppose you held such an auction and nobody showed up to bid? Let us remember that New Zealand's convoluted sale of 2 GHz range 3rd generation (3G) cell phone spectrum dragged on for months (and months and months) and in the end raised a tiny fraction of what had been anticipated.

TVNZ's dilemma

Under intense pressure from government, TVNZ management was given no real choice. They *would* become a part of the Sky NZ pay-TV bouquet. From government's perspective, it was all a part of their money-raising plan to kick analogue TV off the air and force the country's homes into a Sky service package that at least 900,000 have resisted to date.

TVNZ had a plan of their own - two years back - to create a terrestrial digital service system. They had even found an offshore (British) investing partner for this transition. But a new government wanted none of that and after a series of very public embarrassments for TVNZ, had the management there where they wanted them; ready to accede to government plans. Of course the *real* plan - to strip all terrestrial television - was not revealed. If a bureaucrat had originally suggested a plan to reduce Auckland's TV spectrum from 200 MHz (analogue) to 32 (digital), why not take that one step further and reduce Auckland to 0 MHz for TV broadcasting? Simple as pie - force all homes to go to satellite (not in and of itself a *bad* plan).

TVNZ saw it from a different perspective. They had already made all of the rational arguments (Sky controls the set-top boxes, etc.) and these had fallen on deaf ears within government. Because TVNZ got in the way of a bigger master plan - to eliminate VHF and UHF analogue (and digital) TV totally. If TVNZ was important enough to stand up in opposition to this money making plan then TVNZ had to be dealt with. Cut them down to size. Make them look like silly ego-minded overpaid show business performers. "*Overpaid and overly self important*" was the watch word.

Here is one new bit of information that won't shock you - at this point. Teletext. Remember teletext, that secondary service offered to you as a "free bonus" when you opt to acquire a teletext-equipped television set? Those are the "extra $100-$300 models" that plug you in real time to TAB racing and other breaking event reports.

When TV One and TV2 began Sky NZ satellite service December 1, there was no teletext included. Teletext is not being transmitted for TV3 either. In fact, if you are a Sky subscriber and want to watch the FTA (free to air) services, there is no accompanying teletext available. This is not temporary; this is permanent. With TV service switching to Sky-satellite, good bye teletext. At this point, forever.

It is all about (no surprise here) money. Teletext transmitted via satellite requires additional bandwidth. Sky leases Optus B1 transponders with a 54 MHz bandwidth. Sky is in charge of how they utilise that 54 MHz; Sky is the "gate keeper." And Sky has decided that "teletext is an unnecessary benefit" for their subscribers.

Technically, adding the existing teletext service to Sky's delivery of TV One and TV 2 (and TV3) adds around 500 Mbps (one half of a Gbps) of "overhead". So if TV One, TV2 and TV3 *all* provided teletext through Sky, 1.5 Gbps of the transponder (500+ 500 + 500) is consumed. Translate that? Some of the less important Sky channels (such as Juice, MGM Movies) use very little more than this themselves.

Money? If Sky permitted teletext to be concluded, as it is for terrestrial TV, the additional "space" required would come close to or equal the equivalent of an entire new TV channel. And which is the most important - teletext (used by no more than 10% of the population) or another (future) TV channel. A no brainer. Including teletext removes a future TV channel. So no teletext.

Which is exactly the kind of financial reasoning which the bureaucrats at the Ministry of Economic Development understand best. You must maximise all assets and spectrum space is an asset. Only TVNZ does not agree. Perhaps it is because they remain "the people's TV network" and they have a sense of public duty which goes beyond bottom line economics.

Which brings us to a non-Sky operated TVNZ service totally outside of the bottom line mentality. When TVNZ was advised by Telstra/Saturn that their joint partnership satellite delivered service was cancelled, there were some loose strings to unwind. One of these is a contractual provision that has Telstra/Saturn guaranteeing TVNZ one half of a transponder on Optus B1 for a period of 7 years. This was going to be the free to air (DTH or direct to home) "developmental playground" for TVNZ digital services. Some press has misreported that TVNZ "*is on satellite with their own service and it is costing TVNZ NZ$6 million a year.*" The inaccuracy here is that it is essentially costing TVNZ nothing; nada, not a sou. Under the original partnership agreement, Telstra/Saturn was to provide this transponder space *without cost* to TVNZ while TVNZ was to supply programming to the Telstra/Saturn package. This free-to-TVNZ spectrum on Optus B1 (frequency of 12.456 vertical, symbol rate of 22.500, forward error correction of 3/4) was to launch on October 1. In fact it began on October 7 and is there today.

It gets better. Unrestricted by the bottom line commercial restraints at Sky NZ, TVNZ is providing this additional DTH service to anyone equipped with appropriate receiving equipment and teletext is included. Here is what this means:

1) While Sky NZ now offers TV One and TV 2 within their bouquet, which came automatically on 1 December, viewers who want TV One and TV 2 have another option.

2) If you have a Sky supplied set-top (satellite decoder) box, while you may now have TV One and TV 2, you won't have teletext. Because it is not being transmitted by Sky.

3) On the other hand, if you purchase a TVNZ satellite receiving system outside of the Sky world, you will have access to TV One and TV2 with teletext included through the TVNZ operated 12.456 service frequency.

It is far too early to tell what number of New Zealand homes might opt for the non-Sky version of TV One and TV2 (in fact the odds are very few will do so as long as TVOne and TV2 are the only services available). Here is a comparison of costs:

1) Go through Sky and order only the free to air (FTA) terrestrial TV package (TV One, TV 2, TV 3, TV 4, Prime, TAB). You pay $495 installation and $3.99 per week ($17.29 per month, $207.48 per year). If you require two (or more) Sky set-top boxes, add $25 per month (second box rental - now $507.48 per year). Why do you want two (or more) Sky boxes? Because each TV set, each VCR that will tape a programme you are not simultaneously watching will require it's own box.

2) Go through an emerging group of TV dealers who will sell you a complete TVNZ free to air system. You will pay between $450 and $600 for the installation (supplier Sat Link NZ Ltd - www.satlinknz.co.nz). And nothing per month - free to air forever. The downside? You get TV One and TV 2. Nothing more although teletext is included.

The wholesale cost for this package - at dealer level - is NZ$225 for the (Taiwan built Winersat brand) receiver and NZ$75 for the 60 cm dish, LNBf.

Interest? Well, not surprisingly the folks who stock television sets for sale seem at this premature stage to be extremely interested according to reports researched by CTD. The public's interest in having full digital service from TVOne and TV 2 is yet to be measured of course.

TVNZ is quietly supportive of this activity, anxious to keep the free to air distribution approach open because their relationship with Sky was after all a "shot gun marriage" forced on them by government with a hidden agenda. TVNZ believes that when (or if) the number of free to air systems using their 12.456 service reaches 20,000, "*This will be an important milestone for audience measurement purposes and our advertising sales department. And when* (if) *it reaches 50,000 homes, well, then it can stand on its own merits and deserve special attention*."

Premature post script?

One of the principal advantages to "the web" is the ability to transfer information to a widely diverse "audience" in a very short period of time. This can be good - and not so good. For example, this e-mail sent on November 29th to an inquisitive television viewer in the town of Nelson:

From: Carole Skaggs <cskaggs@primetv.co.nz>
To: <name removed>

Sent: Thursday, November 29, 2001 6:11 PM

Good afternoon, <name removed>,

Thank you for your email. Prime has also had an offer to go on
Optus B1. We expect to be available in the Nelson area early in the New Year.

Kind regards,
Carole Skaggs
PA to General Manager

(Coop's comment: Naturally CTD wondered whether this was some sort of premature disclosure regarding Prime TV's intention to be included within the free to air Television New Zealand 12.456 package previously described. Logic suggests that if Prime is joining TVOne and TV2, the "market" for non-Sky home dish systems just grew by some incremental amount. And it further raises the question of "Can TV3 and TV4 afford to stay out of this FTA service for very long?")

And the answer? (1) Prime has an "open invitation" from TVNZ to be on the 12.456 bouquet; (2) If Prime can technically deliver their signal to the TVNZ uplink facility (Avon in Wellington), TVNZ will add it to their bouquet; (3) Prime TV management believes "*we are in the broadcast business - emphasis on 'broad' as in a wide a net as possible. TVNZ offers another venue and we would be remiss if we did not consider this as worthwhile*" ("*reaching potential viewers is the name of our game*"); (4) "*We would not be surprised if PrimeTV was to appear within the TVNZ (Optus) bouquet shortly after the first of the year.*"

New Remote Control Configuration for Sky Digital Channels

SKY Television has announced that from 1 December 2001, SKY Digital channels will be allocated new positions on the SKY remote control. The new format will group SKY channels into genres making navigation and channel selection easier and more user friendly. As announced earlier TV1 and TV2 have joined SKY's digital service as a part of the first tier, the broadcast channels, which also include TV3, TV4, SKY 1 and Prime. Travis Dunbar, SKY Television Director of Entertainment said, "As we continue to increase the number and variety of channels that we offer we need to ensure that they sit in logical tiers. It will now be much easier to select channels as they will now be grouped together in genres such as Broadcast, Sports, Movies, Entertainment, Documentaries and News" said Dunbar.

Sky Digital Channels As of 1 Dec 2001: **0** - Mosaic, **1** - TVOne, **2** - TV2, **3** - TV3, **4** - TV4 /Fashion TV, **5** - SKY1, **6** - Prime, **7** - SKY Sport, **8** - SKY Sport 2, 9 - ESPN, **10** - Trackside/Fashion TV, **11** - SKY Movies, 12 - SKY MovieMax, **13** - MGM, 14 - Hallmark, **15** - Sundance, **16** - UKTV, (nothing listed for 17), **18** - Juice TV, 19 - J2, **20** - Cartoon Network, **21** - Nickelodeon, **22** - Discovery, **23** - National Geographic, 24 - Animal Planet, (nothing listed for 25/26), **27** - CNN, **28** - SKY News Australia, 29 - CNBC, **30** - SKY Box Office, **31** - SKY Box Office Movies, **32** - SKY Box Office Movies 2, 38 - Playboy, **39** - Spice; and the non-English services: **61** - JTV, **62** - KTV, **63** - CTVN, **64** - CTVE, **65** - Phoenix, - **66** CTVC. The newly configured Sky has also expanded its audio-only (radio) service channels, as follows: **70** - Chart Attack, **71** - Pop, **72** - Easy, **73** - Chill, **74** - Jazz, **75** - House, **76** - 50 & 60's, 77 - Disco, **78** - Rock, **79** - Country, **80**- Classical, **81** - Kids plus supplemental **101** - National Radio, **102** - Concert FM, **103** - Wolf Radio, **104** - Edge.

Finally, the first tentative steps for "iTV" (interaction) as - **200** Interaction.

Public "education" about what digital means

If the public is to become interested in or excited about the analogue to digital conversion, a public "relations" campaign stressing the advantages of digital must be mounted. The following report appeared in New Zealand's press late in November.

What digital TV will mean in your house

Do I need a special television set?

Not yet. Your standard TV will receive digital television provided you have a set-top decoder and a satellite dish or a cable connection.

What is a decoder and how much will it cost?

The decoder sits on top of your TV and changes the digital signal sent out by the broadcaster to an analogue signal that your television can receive. The decoder is installed at the same time as the satellite dish and will cost about the same as a VHS player - anywhere from about $250 depending on whether you go for a cheapie or Rolls-Royce version.

(Coop's comment: There is a clue here as to the 'source' of this 'news story'. TVNZ's satellite service is the only one that allows (in fact requires) the viewer to purchase a set-top box. Sky does not sell satellite boxes, TelstraSaturn supplies this box as a part of their cable TV connection. Therefore the answer in incorrect as it leads readers to believe they can (must) purchase boxes from any of multiple sources.)

Will my television set become obsolete?

Yes, but not yet. Some time in the next five to 10 years a new generation of digital television sets which accept the digital signal directly will make decoders, and our current analogue television sets, obsolete.

(Coop's comment: Not quite. Obsolete unless the home has a set-top box in which case the set-top + analogue TV will continue to function until one or the other dies and is not repairable.)

What's so great about digital TV?

Broadcasters like digital because they can create more channels without having to buy any extra airspace. They also believe interactive TV will provide new ways to make money. In the short term the biggest advantage will be the increase in the number of new channels. TVNZ cannot say yet how many or what they will broadcast, but there will definitely be a new Maori channel.

(Coop's comment: Overlooked. When digital works [i.e., there is sufficient signal to make it perform] the viewer has significantly improved video signal to noise ratio [better picture and sound] and in many situations where the home's terrestrial reception is impaired by ghosting and interference, the digital signal [whether via satellite or cable] is head and shoulders over the terrestrial service. As for there "definitely be[ing] a new Maori channel," another bit of uncertain information. Yes, a Maori TV service is planned [during or before July 2002]. That it will in any way involve TVNZ, or appear within the TVNZ satellite fed service, is totally premature at this time.)

What can digital do that my old TV can't?

The new buzzwords for the digital TV revolution are convergence and interactivity. Convergence means different technologies working together. For instance, your digital TV will be able to send and receive e-mail and the Internet, either through a phone line, satellite or cable. Sky plans to launch an e-mail service early next year, while TVNZ-Telstra Saturn hope to offer television e-mail within a year. Digital TV will also be interactive, so you will be able to programme your digital TV to learn the kinds of shows you like and then download them for you to watch at your leisure. In future, viewers will be able to control camera angles, call up statistics, bank, shop and surf the net. Your TV will become more like a computer. Digital TV will also allow you to access deeper layers of information. You might see an interesting five-minute interview and want to know more. You will be able to see the full interview, information about the subject and go online and buy the book.

(Coop's comment: Confusion here. The report confuses what a digital TV receiver and a digital TV recording device will be able to do. Overlooking the future availability of a TV set that has a recorder [hard drive] built-in, while it may be possible for the digital TV of the future to select the programme channel you wish for you, it is not possible for the TV set to select and record that programme for later review. And most important - overlooked that when all of us are satellite TV viewers, the TV decoder [pay-TV programme selector] will either still be a set-top box provided by the programme service, or, a built-in device approved by and subject to the rules of the pay-TV provider. That anyone over 50 is likely to live long enough to see all of this happen without Rupert Murdoch and friends being in control is very slim at best.)

Can I use my Sky decoder to receive TVNZ-Telstra Saturn digital TV?

At the moment, no. Whether this ever becomes possible depends on the outcome of discussions between Sky and TVNZ-Telstra Saturn, and whether the type of system that TVNZ decides to use is compatible.

(Coop's comment: TelstraSaturn digital TV? Although this report was published November 18th [and after], it seems to have missed that TelstraSaturn will not have a digital TV service [via satellite]. Per chance this was written before the August announcement of the death of TS DTH?)

What is the difference between nicam and digital - are my nicam appliances obsolete?

Digital TV will give a sharper picture and better sound than analogue TV. Nicam improves sound quality and may also improve digital TV sound.

(Coop's comment: Simply wrong. NICAM is in fact digital audio. It was the first widespread use of digital audio in the world for broadcasting. NICAM exists in New Zealand at a frequency which is 5.850 MHz above [higher than] the video carrier frequency, uses a maximum bandwidth of 510 kHz and is known as the "728 NICAM format". Terrestrial NICAM is a spectrum inefficient stereo format, but the best that could be done at the time of creation. Digital TV sound improvement is unrelated to the use ([or non-use] of NICAM.

Will Aucklanders be able to get cheap phone services through satellite dishes?

No, but Telstra Saturn is planning to bundle other telecommunications services with the satellite service using its own and other telecommunications companies' facilities.

(Coop's comment: A marriage of any kind between the "satellite dish" and "cheaper telephone rates" is at best fantasy. Nothing involving the telephone passes through, is connected to, has anything to do with the satellite dish. If having a satellite dish on the roof lowers phone rates, it is a marketing coincidence, not a technical innovation.)

What's the difference between cable and satellite?

Cable is better than satellite because of its larger capacity but cable networks are much more expensive and take much longer to install than satellite, which is immediately available anywhere in the country. Wellington already has cable and Telstra Saturn is spending $1 billion rolling out cable capability to Auckland, Christchurch and Dunedin.

(Coop's comment" "Better" is the wrong descriptive adjective. Satellite as we know it from Sky NZ, Austar, Foxtel is a one-way service. Even the IHUG service through satellite is one way (in all cases from satellite to the dish). Any reverse connection involving satellite requires use of a wired telephone line. Cable on the other hand is a large (but finite) bandwidth "pipe" which can at the designer's discretion be broken up into opposite directional paths. Part of it goes from the cable facility to the home while another segment of its [bandwidth] capacity is dedicated to returning information from the home to the cable provider. In the instant case of TelstraSaturn in Wellington and Christchurch, the spectrum from 45 to 600 MHz is dedicated to sending information to the home while the higher spectrum [from 600 to 850] is set aside for the return path. However, the return path is bandwidth limited [there is a maximum data rate possible] which in turn is a function of the simultaneous users of the circuits. The greater the use, the smaller the bandwidth for an individual user. And once the return transmission from the home to the cable service provider reaches the cable firm's facility, then it must be married to an existing connection that goes beyond the cable system plant. Thus while one might in fact obtain high speed data to the home, the return path which requires the use of connections outside of the cable facility will typically be no faster than a standard telephone modem [56 kbps] connection. Cable interactive is better than telephone interactive but the degree of "better" may be very small in the real user world.

Can Telstra Saturn cable TV subscribers in Wellington already get digital TV One and TV2?

No. People in Wellington do not get any extra services from TVNZ. But the key point is that whereas TelstraSaturn now has cable digital (subscriber paid) TV only in Wellington, digital satellite TV will instantly give the whole country coverage.

(Coop's comment: Not quite correct. The answer implies that if you have TelstraSaturn "digital cable" in Wellington, you will be able to have "digital TV" to the home through the cable. This is possible only as TelstraSaturn provides digital-capable set-top boxes to the homes and this has not yet happened. And when it does, the digital-capable set-top box will convert the cable digital signal back to analogue TV so the interfacing analogue TV set can see the picture [in analogue of course].

Seeing digital TVNZ in the home must wait for the day when digital TV sets, equipped to function with TelstraSaturn's digital cable TV service, are available. As long as any portion of the service link is analogue, the end result is "analogue quality" no matter what the marketing people may call it.)

Sky NZ "Short takes"

Sky TV aims to break even. Sky Television aims to break even within two years, according to chairman Tom Mockridge. He told the pay-television company's annual meeting in Auckland the net loss of $42.6 million for the year to June had been the price of continued growth and, in particular, the low buying-power of the New Zealand dollar. Sky attracted more than 53,000 new customers during the year and revenue topped $300 million. "*We still have value to create by building the business. The board is very committed, not only in growing the company in terms of subscribers, but of bringing this company to profitability*." He said New Zealand now had a "rational" market in the broadcasting sector, referring to the recent agreement between Sky and TVNZ, which will see TV1 and TV2 carried on Sky's satellite platform from December 1. Chief financial officer Paul Smart said after the meeting that trading in the first quarter of the new financial year "*was in line with expectations*". Chief executive and board director John Fellet told about 100 shareholders that in the June year, the value of Sky TV shares appreciated 24 per cent in total, a 23 per cent better return than the NZSE 40 index. Signing up 53,864 subscribers during the year was a record. (As at their board meeting), Sky had 440,000 subscribers, and 290,000 of them were digital customers. At the current rate of connections, net customer gain for the new financial year would be about 33,000, he said. The company had so far downloaded "open TV" to 175,000 customers' satellite decoders. About 10,000 downloads were being completed a night. Open TV is the application software which all Sky's interactive applications will hang off. One week after downloading was completed, Sky would launch its interactive services. An e-mail service would be launched in the first quarter of next year. Mr Fellet said the "biggest bane" of Sky's existence was the continuing low value of the Kiwi dollar. Sky must buy its programmes in US dollars. A one cent drop in the Kiwi dollar-US dollar exchange rate cost Sky $3.5 million in operating cash flow. "*When Sky was floated in December 1997, one New Zealand dollar could buy US61.5 cents. If that rate had been in effect for the year just ended, I would have reported a $26 million profit rather than a loss*." Subscriber growth was continuing to drive top-line revenues, Mr Fellet said. In the past six years, the compound growth rate had been 21 per cent. Although earnings before interest, tax, depreciation and amortisation was up only slightly for the year, the compounded growth rate had been 21 per cent. Ebitda was on track to grow another 20 per cent this financial year. Mr Fellet later said the company might service its bank debt, which falls due in March 2004 at $215 million, with another capital notes issue or bonds offer. He announced several new programming initiatives, including BBC World from January, and a new music package on December 1.

Sky Television announces BBC affiliation. SKY Television confirmed BBC World's 24-hour news and information service will be available to all SKY Digital subscribers commencing January 1, 2002. Soon to become an integral part of SKY's basic start-up package, BBC World provides the latest news, sport, business and weather, 24 hours a day. Along with that, are the BBC's vanguard current affairs, documentary and lifestyle programming.

(Coop's note: BBC "overnight" will continue to be available from approximately 12 midnight to 6 AM on TV One.)

Sky launches new audio service - for pay. SKY Television in association with AEI Music confirmed today that from December 1, 2001, SKY Digital subscribers will be able to choose from twelve new music audio channels. This new audio service under the brand SKY Digital Music will offer twelve different music styles, in full stereo, 24 hours a day, without intrusive commercials or DJs. SKY Digital Music will be available to all digital domestic subscribers for a monthly fee of just $1.99, with the channels being updated each month to feature new releases and further reflect changes in popular musical trends. To give subscribers a taste of the channels, SKY Television will provide the service at no cost to all digital subscribers for the first month. AEI Music Limited, who became a business partner of SKY Television in June 2000 with the launch of SKY Music, will provide the content for the new service. Operating in more than 50 countries, AEI Music Network Inc. is the world's leading provider of both custom music and imaging content for business. Audio Channel line-up (**XX** is Sky channel #): (**70**) Chart Attack Non stop top 40 hits, (**71**) Pop The greatest pop hits from the 60s to today, (**72**) Sounds to soothe the soul, (**73**) Chill Mellow dance tracks and warm acoustic sounds, (**74**)

Jazz A blend of traditional and contemporary jazz, **(75)** House rhythmic beats and thumping base, **(76)** 50s & 60s Rock'n'Roll and 60s classics, **(77)** Disco Boogie On Down all over again, **(78)** Rock Turn It Up And Rock On!, **(79)** Country Nashville comes to your living room, **(80)** Classical Elegant time honoured pieces from the Masters, **(81)** Kids Collection of fun children's music and classic tunes.

(Coop's note: There is more importance to this new Sky service than merely the presence of "radio". With National Radio (Sky #101), and Concert FM (Sky #102) about the only important missing audio service on Sky's satellite package is talk-back radio. Commercial radio growth may well be threatened by this. More important, however, background music providers for shops, offices with charges in the tens to hundreds of dollars per month will quickly find Sky's sale team is out there working their side of the street. In Australia, super markets and professional offices have been major switch-over customers for the various Austar and Aurora audio-only packages - it is simply a matter of economics. Why pay $100 a month when you can have a similar service for under $40 per month [the cost of the "basic" Sky package with the $1.95 addition of Sky's audio services]?)

In the "not so good news" department

TelstraSaturn to cut numbers. New Zealand-based telecommunications and pay-TV company TelstraSaturn is reviewing its staffing levels and network rollout. TelstraSaturn is a 50:50 joint venture between Telstra and regional Australian pay-TV operator Austar United Communications. Earlier in November, TelstraSaturn announced plans to buy Clear Communications from British Telecommunications. The purchase is dependent on New Zealand Commerce Commission approval. Telstra said Clear would be integrated with TelstraSaturn to create a new challenger in the New Zealand market, and give more services to customers. TelstraSaturn's integration with Clear would bring the critical mass required for Telstra to be a long term serious contender in the NZ market. There would be some staff reductions in New Zealand operations, and Telstra planned to combine operations as soon as possible after the purchase is completed during December. TelstraSaturn chief executive Rosemary Howard said a *consultation process with staff had begun, relating to proposed changes occurring at the company. "The global telecommunications market has been experiencing difficult conditions and is expected to do so for the medium term,"* she said. "*TelstraSaturn is also moving from its start-up phase to one where it needs to focus on efficient operations and generating revenue growth to consolidate its position for when market conditions improve*," she said. TelstraSaturn has a fibre-optic network in Wellington and has been working to build similar networks in Christchurch and Auckland. "(But) *with the need to consolidate and improve efficiencies, we have decided to pause the Christchurch rollout while we review how to improve financial returns in serving business and residential customers outside of our existing network build areas*," Ms Howard said. Ms Howard said the pause would have zero impact on existing customers, and the company would have a strengthened commitment to revenue growth. "*As a result the focus of some activities will change, which will impact on TelstraSaturn's operations and staff numbers*," she said. "*We are currently consulting with staff and getting their feedback. Staff are our first priority and they will be treated fairly in the process.*"

(Coop's comment. Of course a lack of funding is at the root of this situation, coupled with the previously CTD reported failure to secure adequate pole use "rights" in the Auckland City region. As for where the funds will come from, if [IF] TelstraSaturn renews its commitment to building a fibre-coaxial, read on.)

Austar United's parent company has defaulted on an interest payment on debt used to partly fund its Austar stake, highlighting its precarious financial position. US-based UnitedGlobalCom (UGC), which owns 81 per cent of the regional pay TV group, has told the US Securities and Exchange Commission it could not make the first interest payment of $US34.5 million (A$66 million) on the senior discount notes which is now past due. The news comes as Austar continues negotiations to roll over its $400 million debt facility by the end of December. But an Austar spokesman said the issue of UGC's bonds was unrelated to the local company's refinancing negotiations. However, the default prompted ratings agency Standard & Poor's to downgrade the notes to D from triple C. "*At the same time the ratings are removed from credit watch where they were placed on August 22, 2001*," the agency said. UGC's local subsidiary United Australia/Pacific issued $US488 million in bonds from 1996. UGC said the notes had begun to accrue interest from May 15 this year and the first payment is now past due. "*The company does not have enough cash to make this interest payment. Accordingly,* *the company will not make this interest payment,*" UGC said. In another filing, the 10K document, it said that if it did not pay the amount within "30 days or more" the trustee can declare the (principal) amount payable. "*The trustee ... could initiate bankruptcy proceedings against the company, sue to recover the amount of the notes or take any other action available to creditors,*" the company said. Based upon current market prices, the value of the company's assets is significantly less than the amount of outstanding principal and accrued interest. "*While the company has sought financing from United, at this point the company believes it is unlikely United will make such a contribution.*" UGC said it had engaged legal and financial advisers in relation to the matter and had received a letter from the trustee of the indentures confirming it was in default. UGC is now believed to have entered discussions with the bondholders in an attempt to restructure the debt. The thinly traded notes hit a year high of $US1.30 last December and hit a year low of US15c. Austar's shares have recently been buoyed by take-over speculation and rose 1.5c to 31.5c.

TelstraSaturn to acquire Clear Communications. Austar United Communications Limited announced that its New Zealand joint venture company with Telstra Corporation, TelstraSaturn had agreed to acquire Clear Communications from British Telecom. The acquisition, which is subject to regulatory approvals, will be funded without a requirement for further equity contributions by Austar. As a result of the acquisition, Austar's share in TelstraSaturn will be reduced to approximately 38%. Austar will continue to have two of the six board seats and retain certain rights under the shareholders agreement, including the put and call options referred to in Austar's announcement of 1 October 2001. "*This is an excellent development for TelstraSaturn and its shareholders,*" said John Porter, Chief Executive Officer of Austar United Communications. "*It will cement TelstraSaturn's position as dynamic challenger and bring enough scale to really take on Telecom in the New Zealand communications market. There are obvious synergies between the two companies which will reduce the capital requirements of TelstraSaturn in the future and bring forward achievement of positive EBITDA. Clear also brings an excellent customer base, especially in the SME and corporate markets,*" said Mr Porter.

(Coop's comment: The referenced October 1 statement revealed that as TelstraSaturn winds down continued expansion of its Christchurch and Auckland fibre + coax rollouts, Austar's role in the company will be reduced. Future expansion will be funded totally by Telstra, and under a 'side agreement' by 2003 Telstra will in effect buy-out Austar [Saturn] making the system at that stage totally owned [and operated] by Telstra. So it is Telstra buying Clear here, not Saturn/Austar/UGC.)

Austar down to last $127m. Regional pay TV group Austar has revealed it has only $127.5 million left in the bank as the deadline to roll over and extend its $400 million debt facility approaches a crucial stage. The company spent $125.7 million in the last quarter, according to its third-quarter cash-flow statement, but that included three one-off payments that are not expected to recur. Austar paid the final $30 million instalment for metropolitan spectrum bought from Television & Radio Broadcast Services (TARBS), made a $25 million contribution to the TelstraSaturn business in New Zealand and paid its parent company, United GlobalCom, $19.9 million in accrued management fees. However, the TelstraSaturn business was restructured in early October so that Telstra takes responsibility for ongoing funding. Austar spokesman Bruce Meagher said expenditure in the current quarter was expected to "*reduce significantly, and we will start to see more significant reductions in the general operating expenditure because of the cost-saving measures that are being undertaken,*" he said. He also reiterated that Austar was comfortable with its discussions with the banks, saying an announcement on a debt rollover was expected "within a number of weeks". The debt must be repaid or restructured before the end of December. Austar intends seeking an extra 150 million from the banks to fund it to a cash-flow-positive state.

(Coop's comment: What continues to amaze me is acceptance of the belief that a satellite pay-TV delivery system can, in fact, **ever** become "cash flow positive.")

Brits admit analogue to digital transition is having problems

The BBC and ITV are negotiating a plan that could secure the future of the troubled U.K. DTT platform ITV Digital and ensure free access to the BBC's channels in the digital age. The plan is at a preliminary stage and is being spearheaded by the BBC director general Greg Dyke, and Carlton's chief executive Gerry Murphy. The idea would be to jointly develop a paid-for set-top box that would deliver free multichannel digital TV, therefore providing terrestrial broadcasters with guaranteed distribution for their programs. It is understood the government would support such a plan given its concern over Rupert Murdoch's market strength and the backing of the digital terrestrial industry. Through this so-called 'digital coalition' scheme the BBC, ITV, and possibly Channel 4 and Channel 5, would pool their digital terrestrial broadcast and transmission operations and jointly develop a box to offer access to some 20 channels. The box, which would cost around £100, would offer up to 20 channels free of charge. If viewers want to access ITV Digital's pay-TV channels, they could buy a credit card-sized device that would be inserted into the back of the box. Because the plan vastly reduces the cost of ITV Digital's set-top box subsidies, it would save owners Carlton Communications and Granada a total of £100m.

The involvement of the BBC, ITV, Channel 4 and possibly Channel 5 means ITV Digital could break even after further investment of £150m, rather than the £300m originally estimated. Although Carlton and Granada have ruled out closing the business, they are committed to streamlining the business and stemming its losses. They have hired David Chance, former chief executive of BSkyB, to start a wide-ranging review of the business. BBC insiders said the corporation feared Rupert Murdoch's BSkyB would dominate digital TV in the UK if ITV Digital was shut down. The BBC "*does not want to end up being dependent on Rupert Murdoch*", one person involved in the talks told the Financial Times.

(Coop's comment: Obviously there is a difference of government philosophy in the UK as New Zealand's government has essentially pressured TVNZ into becoming "dependent on Rupert Murdoch.")

The government is committed to switching off the analogue broadcast signal between 2006 and 2010, when it plans to sell off the analogue spectrum in an auction. Despite some reports that the switch-off deadline was unlikely to be met, the government reasserts that the plug will be pulled on analogue by 2010. The slow adoption of digital television is continuing to trouble the government, but the prime minister indicated there would be no delay to the timetable for switching off analogue services. The government has been promoting digital TV as a way to get non-PC users online to access government services and promote the UK as an e-commerce hub. According to a report in the Financial Times, government insiders had suggested that the switch-off deadline of between 2006 and 2010 was unlikely to be met as take-up of digital TV services had been slower than expected. But in a speech to the Confederation of British Industry (CBI), Tony Blair said, "*We have a target to switch off analogue TV between 2006 and 2010. Despite the turbulence in the markets that objective remains achievable.*" Blair said the UK led the world in digital television connections, with nearly 40 percent of citizens living "in digital households". He added that the government's digital TV action plan would assist in encouraging digital uptake, but added that business needed to "*encourage households to recognise the scarcely tapped potential of interactive TV.*" He added that the next challenge for the UK government was to increase the use of broad band connectivity, and he detailed the three methods in which the government hoped to achieve these aims. These were local loop unbundling and new wireless and satellite services; encouraging competition through regulation; and a plan to "promote exciting content to attract users to broad band content."

(Coop's comment: Local loop unbundling [eliminating Telecom NZ's hold on the final wire delivery system], encouraging "new wireless and satellite services" is totally contrary to the present NZ government plan which has through the Ministry of Economic Development actually taken steps to discourage new wireless technology.)

However, a recent survey by market research company Counterpoint on behalf of telecoms regulator Oftel found that when people decide to switch to digital television services, interactive and Internet services are almost never a key attraction. The report said that at best such services were seen as an "interesting extra". According to the survey, users had found that accessing interactive features had led to crashes, screen freezes and slow service (Coop's comment: The very problems which have plagued and continue to plague Sky NZ's turn-on of "iTV" service). Online banking and shopping were described as "confusing" and were rejected. Many e-mail accounts were discarded because of PC interoperability problems, particularly when opening e-mail attachments. The report concluded that "*surfing, composing and reading emails were rejected.*" (Coop's comment: See CTD for November 02 [2001] and the complete report of the problems faced by "iTV" promoters.) A new report from Continental Research claims consumers in the UK are not making provision for the Government's switch-off from analogue to digital terrestrial service, planned for some point between 2006 and 2010. The report, entitled Digital TV Q4 2001, states that 40% of households currently without multichannel TV are unaware that a switch-off is happening and that they will not be able to watch TV unless they move to digital TV. When respondents where asked when they thought analogue switch off was likely to occur, 29% of homes expected a switch off prior to 2006, slightly lower for terrestrial homes at 25%. As only around 10% of terrestrial homes are planning to install multichannel TV, this means 22.5% of terrestrial homes expect an analogue switch off in the next four years but are not planning to take multichannel TV, indicating that they are unaware that this will mean they will not be able to watch any television.

Since the launch of digital TV in autumn 1998, growth in multichannel homes accelerated, with just over two in five homes now having access to multichannel TV of some sort, delivered via dish, cable or digital terrestrial TV. But there is evidence now of a slowdown, with the penetration of 43% remaining the same as the previous two quarters. At the end of September 2001, one in three homes in the UK had digital television, a position reached just three years after the first digital TV service launched. In September this year, BSkyB pulled the plug on its analogue service, and according to a number of industry reports, around 77,000 analogue customers were left at the time of the switch-off. Sky has been very successful in converting analogue customers to digital, and the ending of this migration is likely to be a major factor in the slower growth of the digital market recently.

Commenting on the findings of the report, David Chilvers, director of Continental Research, said: "*The appeal of having more channels declines with age and the appeal of better picture quality increases with age. This suggests that marketing key features of digital TV may need to be more segmented, with different messages being developed to appeal to different age groups. And as familiarity with interactive services grows this should further stimulate interest in the market.*"

And it's hoof-and-mouth disease's fault! It had been assumed that the UK government might have to buy DTV receivers for perhaps 30% of households who wouldn't have switched by the desired date. According to the Financial Times, "However, the [2.5-billion] bill for compensating farmers in the foot-and-mouth outbreak" used up the money for DTV (!)."

Follow-up: Our November report on "iTV" and software-middleware

Interactivity May Bring More Revenue Opportunities. As manufacturers and service providers continue to mine new revenue streams few consumer electronics products going forward will undergo as much change as the set-top box (STB). Ironically, while STB designs are caught in this whirlwind of activity, the hardware itself is likely to change very little. Instead, most changes will take place in middleware — or the software that serves as the foundation to deliver huge sums of new Advanced Interactive Multimedia (AIM) content and services. Middleware serves as the software base upon which all services will run, regardless of the device. Growing numbers of Direct Broadcast Satellite (DBS) and cable interactive TV subscribers help to verify this potential for growth. Two important questions are addressed here in order to measure the subject of middleware revenue streams. First, what has middleware done thus far to enhance the way we watch TV? And second, are there any special middleware-based opportunities for CE dealers in the years ahead? The answer to the first question is focused primarily on the developments and opportunities that have already occurred in Europe. Sources at Liberate, Microsoft and OpenTV suggest that Interactive TV in Europe — primarily on satellite, but also on cable — is a big hit. For example, 5.5 million out of a total 8.5 million BSkyB digital customers take middleware-enabled interactive TV services. What has been shown so far is that powerful middleware quickly develops a healthy community of content creators, especially in the areas of iTV sports, news, weather, shopping and gaming. This content capability gives consumers more from their purchase of a STB, and it helps dealers and distributors increase STB sales. More STB sales also mean more installations and after-the-sale ancillary purchases, such as warranties, speakers, home theatres, etc. Therein lies the most immediate opportunity for CE retailers. Most consulted for this article felt the best opportunity for incremental revenue from interactive television is T-commerce. One form of this will be so-called "virtual channels," where viewers will shop for cars or real estate, much like they purchase goods from QVC and The Home Shopping Network in the U.S. today. T-commerce services empowered by middleware from OpenTV and Wink, are building into the ultimate impulse-driven sales tools. Eventually, a small icon will appear during programs signalling viewers to click the remote, and instantly go to a screen to purchase a product related to the show they are watching. The question left unanswered is how retailers will dip into this new revenue stream. One option for larger players could come from retail chains allying with system operators to sell goods and services through T-commerce channels of their own. For others, long-term incentives come by providing compelling in-store demonstrations. If the subscriber then purchases that service, middleware providers and system operators will benefit from recurring revenue streams and may be motivated to eventually give dealers a piece of the action. On the down side, some CE retailers might balk at helping to activate T-commerce-systems that compete with them for product sales. But frequently these dealers will benefit from the promotional hype these services give to products.

(Coop's comment. It is "editorial reports" such as this one which gives "iTV" the added shelf life it will require to survive. The reality is "iTV" is going no place at an alarmingly slow rate and the public could care less about it. Repeating a snippet of an earlier study cited in this issue of CTD, "a recent survey by market research company Counterpoint on behalf of telecoms regulator Oftel found that when people decide to switch to digital television services, interactive and Internet services are almost never a key attraction. The report said that at best such services were seen as an 'interesting extra'. According to the survey, users had found that accessing interactive features had led to crashes, screen freezes and slow service.")

DVD copyright: Turn about for the movie rights owners

DVD-cracking code is free speech. A California court has dealt a potentially serious setback to the movie industry's attempt to rid the online world of software that can help break through copy protections on DVDs. The appeals court has released a decision overturning an earlier order that barred hundreds of people from publishing the code for a software program called "DeCSS" online. Posting the code is just like publishing other types of controversial speech and is protected by the constitution, the appellate judges said. "*Although the social value of DeCSS may be questionable, it is nonetheless pure speech*," the decision reads. "*Our respect for the legislature and its enactment of the* (trade secrets law) *cannot displace our duty to safeguard the rights guaranteed by the First Amendment.*" The decision, while not a final one on the legality of the software program, nevertheless marks a severe blow for the movie industry's legal battle against online threats. Hollywood studios have contended that software that can break through their anti-piracy techniques is simply a tool and does not warrant free-speech protections. A federal judge has agreed with much of that reasoning. The California appeals court's ruling Thursday goes the furthest to date in explicitly defining software code as speech. Under that legal reasoning, programmers could still be prosecuted for posting illegal software but could not be prevented from doing so in the first place. The difference is important for both sides, particularly in software cases. If publishers can release something online, even if it might be deemed illegal later, it can take on a life of its own as it is read, copied, and distributed by others. If copyright holders could get a prior restraint on publication, the spread of a piece of software or information could more effectively be stopped. The DeCSS software, in several legal manifestations, has become a cause célèbre among open-source programmers and much of the computer underground.

Allegedly created by a 15-year-old Norwegian programmer named Jon Johansen, the DeCSS software was designed to let DVDs play on computers running the Linux operating system. But it wound up being a tool useful to those who want to copy movies stored on DVDs and distribute them online. The movie industry has sued to stop the spread of the software in several ways. A federal case is still going on, in which the industry argues that the code is explicitly designed to break through a copyright protection system and therefore illegal under the Digital Millennium Copyright Act. In that case, publisher Eric Corley has been blocked from posting the code online or linking to other sites that post the code. He's appealing that ruling, saying that the decision violates his free-speech rights. Prior to the federal case, the movie industry filed its suit in California against hundreds of people who had posted the code online. In this case, the DVD Copyright Control Association, an industry group aimed at fighting DVD piracy, claimed that Johansen and anyone who posted the code was illegally spreading trade secrets.

The unusual argument states that Johansen reverse engineered the anti-piracy technology to create DeCSS. Although he didn't actually have access to trade secrets to steal, the reverse engineering was barred by a license agreement distributed along with software DVD players. The judges did not evaluate that argument Thursday, as they looked only at the issue of whether blocking the code's publication was appropriate. The court said that blocking publication would amount to "prior restraint." Judges typically see this as a legal no-no and have used the term to allow publication of instructions for building a nuclear weapons and to protect The New York Times' ability to print the Pentagon Papers documents on Vietnam. The movie industry's "*statutory right to protect its economically valuable trade secret is not an interest that is 'more fundamental' than the First Amendment right to freedom of speech*," the judges wrote. Nor is it "*on equal footing with the national security interests and other vital governmental interests that have previously been found insufficient to justify a prior restraint.*" The Motion Picture Association of America declined comment on the ruling, saying that members had not yet had a chance to study the ruling. But the decision has re-energized online civil liberties activists. "*I really think the court of appeals reinstituted the cyberliberties of individuals world-wide*," said Allonn Levy, an HS Law Group attorney working for the defense. "*We are a free society, and we are entitled to free speech.*" The California case is currently in the middle of a pretrial phase, with both parties seeking information from the other.

While the hardware gets better and the rights owners unite

Networks See Threat in New Video Recorder. Three years ago, television executives watched as so-called personal video recorders allowed viewers, for the first time, to pause and replay programming even as it was being broadcast. And network executives stood by as the machines surpassed the VCR's ability to record a show for later viewing — the new recorders can tape one program while the viewer is watching another. The notion of prime-time seemed defunct. But in November, one company appeared to crossed the networks' line in the sand — by making it easier to skip commercials. ABC, CBS and NBC filed a lawsuit against SonicBlue, maker of the ReplayTV personal video recorder, arguing that the latest version of the ReplayTV device would deprive them of revenue and reduce their incentive to create programming. Although the ability to fast-forward through programs and commercials has been a standard feature of such machines, the Replay4000 allows viewers to record programs, and skip the ads altogether. The new ReplayTV unit, which is being shipped this month, also lets viewers send stored programs to other users over the Internet, a feature the three networks says infringes their copyrights. The three big networks are hoping to block sales of the device, which the company is set to release just in time for the holiday shopping season. SonicBlue responded to the lawsuit by saying that its ad-skipping technology is similar to time-honoured fast-forwarding feature of a VCR. As for the program-sharing feature, the company's chief technology officer, Andrew Wolfe, said the company was not inclined to let the media companies determine what kind of technology it can sell to the public. Whether the media companies' suit will succeed is anybody's guess. But whatever the courts rule, personal video recorders are not likely to go away. TV executives worry that the recorders threaten to do to their industry what Napster has done to the music business — change the rules, and skew the economics. Personal video recorders from TiVo SonicBlue and UltimateTV allow viewers to record programs, sometimes two at a time, store them to view later, pause and replay them as they are being broadcast. To varying degrees, all the recorders let viewers fast-forward through programs, including the commercials. So far, one solace for the media companies is the fact that the personal recorders have been slow to catch on with the public. To date, the makers have sold only a half a million units since the machines were introduced in 1998. Apparently, many consumers still see the machines as too pricey an alternative to the old- fashioned VCR. Currently a customer can expect to pay $400 to $600 for a digital recorder, which includes a subscription to the underlying program guide and recording service. TiVo, the market leader whose name is synonymous with the product category, has sold 300,000 to date. The TiVo technology operates with digital video recorders made by Sony and Philips, and TiVo is in talks with other manufacturers. Microsoft's UltimateTV division is in second place with about 100,000 subscribers, who use the service with DirecTV satellite receivers. ReplayTV has about 75,000 customers, who until now have used the service with equipment from the Panasonic unit of the Matsushita Electric Industrial Company. ReplayTV has also teamed with Motorola to build the technology into Motorola's cable TV set-top boxes. The big question facing the digital- recorder companies right now, analysts say, is whether sales will pick up over the holidays, or whether consumers will wait for prices to come down and the economy to improve. Strong holiday sales are particularly critical for TiVo, which is unprofitable and has been burning through cash. Strong holiday sales of 300,000 to 500,000 units would change TiVo's outlook, but sales of 100,000 units or fewer could spell real trouble, according to Josh Bernoff, a TV analyst at Forrester Research. Companies are just starting to roll out their holiday promotions, and some analysts expect prices for some introductory packages to dip to $300 or less. UltimateTV, for one, is offering a $100 rebate through some electronics stores. TiVo's competitors have the advantage of bigger owners. SonicBlue, a Santa Clara, Calif., company that makes DVD players and the Rio MP3 device for storing and playing downloaded music, bought ReplayTV earlier this year. And even though UltimateTV faltered in its first incarnation as a Internet-identified device called WebTV, its owner — Microsoft — has nothing if not cash and staying power. In October, TiVo announced an agreement giving Sony rights to include TiVo personal digital recording technology in Sony's consumer electronics products for the next seven years. The deal is part of TiVo's effort to move toward a licensing business and to promote its technology as an industry standard, said Mike Ramsay, its chief executive. The new strategy should help TiVo save money, he said, and is also a step toward its long-term goal of licensing its technology to cable and satellite companies to build it into their set-top boxes. The challenge for all the companies, though, is persuading the public to better understand their products. Nick Donatiello, president of Odyssey Research in San Francisco, says the lack of coherent marketing has cost the companies millions in lost revenue opportunities. "*They should be able to get this right*," he said. "*Somehow, microwave companies were able to explain in 30- and 60- second spots that you could cook without heat and radiate your food without getting hurt.*" Still, sales of personal video recorders are starting to pick up, and promise only to accelerate in coming years. By the end of next year, Mr. Bernoff of Forrester predicts, 3.5 million homes will have a personal video recorder, mostly in the form of a stand-alone box like the TiVo system. By 2005, he says, more customers will routinely buy the units as part of their cable equipment. Tim Bucher, vice president for consumer marketing at UltimateTV, said the public's slow adoption of the technology was to be expected. "*Any new category that is a major shift in what people have been used to for 50 years takes time to develop*," he said. UltimateTV, he said, is proceeding cautiously when it comes to the TV industry, hoping to work with the networks rather than against them. "*We can deliver services on top of what's there*," he said. "*We don't need to turn TV on its head.*" And yet, if personal digital recording does catch on, it could significantly alter the way people watch TV. "*People are really drawn to the idea*," Mr. Donatiello said. "*It gives them what they want: choice and control.*" A recent Odyssey survey showed 40 percent of Americans respond favourably to the concept of being able to pause live TV, to record one show while watching another or to speed through programming. "*That's a huge number*," he said. And that is why the networks are worried enough to sue.

AOL TW joins SonicBlue court battle: Add AOL Time Warner to the list of Hollywood heavy hitters that have gone to court to stop SonicBlue's latest personal video recorder, the ReplayTV 4000, which not only permits viewers to skip over commercials but has a feature allowing users to record shows and them transmit them to others via the Internet. This latest copyright infringement lawsuit against SonicBlue and Replay was filed Nov. 9 in the U.S. District Court in California, and the specific AOL TW plaintiffs are Time Warner Entertainment, Home Box Office, Warner Bros. Television, Turner Broadcasting System, The WB, Castle Rock Entertainment and New Line Cinema. Their suit follows a similar lawsuit, filed in California U.S. District Court on Oct. 31, in which various divisions of Viacom and The Walt Disney Co., as well as General Electric's NBC, also claimed that the newest Replay's commercial skipping feature and program duplication feature are illegal. This latest suit contends specifically that the Replay 4000's ability to copy programs and transmit them to others over the Internet constitutes copyright infringement and that the "*removal of commercial messages by itself robs the advertisers of the value of their purchase of advertising time, depresses the value of such advertising time and undermines the economic models by which television programming is provided to consumers.*" At the time of the first suit, the Consumer Electronic Association issued a statement supporting SonicBlue and its Replay PVR, saying, "*Internet retransmission of content must not be used as a Trojan Horse to roll back established recording and fair use rights in the home.*" At its Web site, SonicBlue continues to offer pre-orders of the various Replay 4000 models for the holidays; the RTV4320, for example, which allows for approximately 320 hours of recording time, is available for $1,999.

(Coop's comment: Let me see if I have this right. One (California) court has ruled that it is "prior restraint of free speech" to deny someone the opportunity to post on a web site or send via Internet the algorithms which unlock the DVD encryption scheme. At the same time, other California courts are being asked to "restrain RePlay TV from offering for sale" a home video recording device which permits the user to skip around or ahead in his personal viewing because this would eliminate material (commercials) which the viewer finds objectionable. If it is not OK to restrain "free speech" in advance of utterance, why would it be illegal for someone in their home to decide what sequence of viewing they will select or even share with others -is that not an equally draconian "restraint"? Is it any wonder that America graduates more lawyers than doctors, in fact more lawyers than all of the rest of the world combined each year?)

State of the art: erasing C from VCR, with a disc. Unless looking sheepish in public is your idea of fun, it's best to avoid making predictions about the future of technology. If, cornered at a dinner party, you absolutely must prognosticate, you should probably stick to relatively safe bets like these: Sony will make more compact things, Apple will make more beautiful things, and Microsoft will make more money. But here's another prophecy that seems like an ever surer thing: tape is on the way out; discs are in. And no wonder: the digital signal on a CD or DVD never degrades or fades, even with repeated duplication. Discs offer random access, too: you can jump instantly to any spot. A decade from now, nobody will ever be late getting a rented movie back to Blockbuster because they had to wait for it to rewind. Already, audiocassettes have yielded most record-store space to CD's, and movie stores' DVD collections are rapidly encroaching on the VHS shelves. Of course, those two examples involve pre-recorded material. But the era of recordable discs is coming, too. Sony, Hitachi and others already make cameras and camcorders that use discs instead of tapes. Now Panasonic has taken aim squarely at the most popular tape-driven appliance of all: the VCR. The Panasonic DMR-E20 does all the usual tricks, including recording and playing back television shows, live or on a timer. It even offers VCR Plus, the feature that lets you program a recording by punching in the show's code number from the television listings. But if recording television shows were all this $1,500 baby could do, you could save about $1,400 by buying a standard VCR. The twist, of course, is that the DMR-E20 doesn't accept tapes. Instead you can feed it either of two kinds of blank DVD's. First, it records onto DVD-R discs, which are relatively cheap ($30 for five) and which play back on most standard DVD players. In other words, Panasonic's machine can turn any video (except copy-protected ones) into a DVD for distribution to friends and family members — not just television shows, but your own camcorder footage and old VHS material too. That's an important perk. The trouble with DVD-R discs is that you can record on them only once. So Panasonic's invention also records onto a second kind of disc, something called DVD-RAM. These cost about $35 each but can be erased and reused over and over. Most DVD players attached to PC's or television sets can't handle these discs, but that's O.K. The idea is that you can leave one in your — what shall we call it, a DVCR? — for everyday recording and rerecording. As with VCR's, you can specify a speed for each show you record. The recording modes let you fit one, two, four or six hours of video on each disc. The one-hour mode, of course, offers the best picture quality, but the quality of even the six-hour mode looks better than VHS does. A moment with the only slightly frightening 52-button remote control teaches you the value of that random-access business. One button push summons a tidy table that lists every recording on the disc with a date, time, channel and (if you bother to type it in) title. Each time you highlight a listing in this table, the show plays in the background — a nice touch that helps you remember what you taped. You use this same access screen to delete a recording or to protect one from deletion. Another payoff: you never have to find a blank spot on the "tape" before recording something. This machine records onto blank areas of the disc instantly and automatically. In short, the E20 is incapable of recording over anything you haven't explicitly deleted — a feature that anyone who has ever wiped out something priceless might consider to be worth $1,500 right there. Panasonic even offers a basic "playlist" feature that lets you specify which recorded chunks (or even chunks of chunks) play back in which order. Immediate benefits of this feature don't spring immediately to mind, but maybe you could piece the scenes of "Pulp Fiction" back into chronological order. The durability and quality of your recordings, the ability to make DVD's for distribution, and that random-access business are the Big Three of the E20's feature list. But some of its secondary features offer a glimpse of the future, too. When you use DVD-RAM discs (which transfer data much faster than DVD-R), you can also watch the beginning of a show that you haven't finished recording, or play back one show while recording another. There's even a button on the remote that lets you jump instantly forward in one-minute increments (labelled "CM SKIP" — get it?). These are life-changing features once enjoyed only by the owners of hard-drive- based VCR's like the TiVo, a close relative of the E20. Even TiVo doesn't offer this E20 goody, however: when you fast-forward at the first of its five scanning speeds, you get to hear the audio, which is surprisingly helpful when you're trying to locate a certain spot in something you've recorded. All of this comes in what may be the best-looking metal box you've ever shoved under a TV. Both the black and the silver models feature an actual strip of mirror along the bottom edge. Not only does it permit surreptitious hair checks during parties, but it also flips open to reveal duplicates of the remote control's buttons — a handy safety net for anyone whose couch eats remotes. This front panel also offers convenient input jacks in both composite or S-video formats for gear like camcorders and ordinary VCR's. The back of the unit offers even more connectors. Some, like the component-video jacks, will be appreciated — and understood — only by the kinds of high-tech video nerds who would spend $1,500 on a VCR. That's not exactly a bargain-basement price, but look at the bright side: this unit's 1999 predecessor did a lot less and cost $4,000. Furthermore, the E20 doubles as a state-of- the-art CD player for music and DVD player for movies, saving you about $500 in additional under-the-set contraptions. Unfortunately, the price isn't the only thing that will prevent the E20 from becoming a breakthrough for the masses. It's so complicated, it should come with a coupon for a training course at the Learning Annex. Because some features work only with one kind of disc or another, the 107 pages of the mediocre manual are studded by tiny disc-format logos designed to help you keep the features straight. (It's a losing battle.) In short, the E20 represents a dramatic step into our tapeless future, but one whose price, complexity and 25 jacks make it a machine clearly designed for proficient home-theater junkies. Nor is Panasonic the only company to see the light: This month Pioneer will release its very similar, $2,000 DVR-7000. (Because it doesn't accept DVD-RAM, however, this model lacks the record-and-play-simultaneously feature of the Panasonic.) These machines won't stay in stratospheric price or sophistication brackets forever, though; don't forget that the first VCR cost $2,300. After a couple weeks with a DVD-based VCR, you, too, will find it easy, just this once, to predict the future of technology.

(Coop's comment: How fine a line it is. The Panasonic DMR-E20 has a "CM1" button which allows the user to skip one minute of recorded material with a single button push. CM? "Commercial minute." Are they lining up to take Panasonic to court?)

Meanwhile: In the matter of marrying digital to satellite

EchoStar this month began a new retail program aimed at controlling subscriber churn. EchoStar CEO Charlie Ergen told analysts in a recent quarterly conference call that the initiative is patterned on a program launched this summer by rival Pegasus. It involves classifying retail partners using color-coded categories based on churn numbers. Dealers with an annualised customer loss of more than 60 percent are designated as "red" and will be required to pay an additional $100 on top of wholesale pricing for each system purchase. Retailers with an annualised churn of between 48-60 percent will pay $50 over the system wholesale cost, and dealers marked as "yellow" have a churn rate of 36-47 percent and will be encouraged to reduce churn but will not be required to pay an additional charge for hardware. Those designated as "white" dealers are those considered to be good performers. EchoStar, which did not disclose its churn numbers, said 2 percent of its dealers account for 10 percent of the company's annualised churn rate. The churn numbers were said to have increased during the nine months ended Sept. 30, from the same period last year. The subscriber losses were attributed to the slowing economy, bounty programs offered by competitors, a maturing subscriber base and piracy primarily using competitors' products. Meanwhile, EchoStar said it is offering current subscribers the chance to purchase its DishPVR 501 combination IRD/personal video recorder for $199. Customers who opt for the purchase must commit to a year of America's Top 150 basic programming at $39.99 per month or greater and sign up for the Credit Card Autopay program where their monthly bill is applied to the customer's credit card. The DishPVR 150 has a built-in hard drive that will store up to 35 hours of television programming at a time. EchoStar does not charge an additional fee for the PVR capability. Without releasing numbers, Ergen said EchoStar is the leading PVR supplier. The company said it will release PVR customer totals when it reaches the 1 million mark sometime next year.

(Coop's comment: Some background. EchoStar [and competitor to-be-subsidiary DirecTV], unlike Foxtel, Austar and Sky NZ, sell their set-top boxes directly to subscribers through tens of thousands of retail outlets nation-wide. Set-top buyers then are given significant discounts for subscribing to the service(s) above and beyond their purchase of a set-top IRD. Retailers become an important part of the way the service is sold, unlike New Zealand and Australia where the pay-TV firms closely control all hardware assets and all subscription sales. EchoStar uniquely offers a PVR [hard drive personal video recorder] through these retail outlets and from this report may in fact have sold more PVRs than all other PVR suppliers combined in the USA.)

Status report: HDTV

Sony Pictures Entertainment is shutting down its High Definition Centre on the Culver City, California lot. The centre officially closes in March, eliminating 50 jobs. The HD centre was opened in 1987 by Sony Electronics to support its entry into the HD production product market and was later absorbed into SPA. It was used primarily used for product demonstrations, transferring feature films to HD videotape and post production projects for outside clients. Sony said it achieved its goal of stimulating the market for its high definition production equipment. In 1998, the centre was honoured with a Technical Emmy award for the its development of a high-resolution film scanner. Dr. Robert Hopkins, senior vice president/general manager of the HD Centre, will remain in the Digital Studios Division of SPE to oversee the transfer to digital videotape of at least 500 film titles a year over the next three years. The HD centre has already digitally mastered 900 titles and the goal is to have 2,400 feature film titles, or two-thirds of its library, converted to digital by 2005. This transfer work will now be outsourced to local post facilities.

(Coop's comment: Sony is a master at "spin" but closing down their HD[TV] film transfer facility cannot be seen as anything other than a loss of faith in the HDTV evolution.)

More: "Fear fallout" from 911 attacks in USA

Countries are building independent satellite navigation networks, troubled that the G.P.S. system is run by the United States military. Around the world, countries are mobilising to build independent satellite navigation networks, troubled that the Global Positioning System, the only functioning world-wide network, is run by the United States military and controlled by the government. In the last decade or so, the continuous signals emitted by a constellation of orbiting satellites have allowed users to compute time, location and speed with high accuracy, calculations that play an increasing role in everything from firing missiles in Afghanistan to guiding ships at sea to flashing directions in rental cars. As the American technology becomes a world-wide standard, foreign governments are wary that that dependence raises issues of strategic and economic security. The United States government sees its Global Positioning System, or G.P.S., as a resource freely available to the world. Even foreign militaries use it. It is managed by an interagency board, but is operated by the Defense Department, a fact that raises qualms around the world. But other countries see the system as an American monopoly, intent on reinforcing its dominion. "*Europe cannot accept reliance on a military system which has the possibility of being cut off,*" said René Oosterlinck, head of the navigation department at the European Space Agency, fairly summing up the emotions G.P.S. elicits abroad. In response, Europe will spend billions assembling a civil satellite system called Galileo, scheduled to be in operation by 2008. By the end of this year, Europe is expected to have allocated 1.1 billion euros ($966 million) to Galileo, with another 450 million euros expected to be approved by the European Transport Commission. China, which hopes to build an independent satellite navigation system within the next decade, launched two experimental positioning satellites last year. The Beidou navigation satellites, named after the Northern Ladle, or Big Dipper in Chinese, sit in an orbit over China. The government uses the systems for things like urban traffic control and earthquake monitoring. Russia has said it will launch three satellites before the end of the year to resuscitate its ailing Global Navigation Satellite System, a military-operated system known as Glonass. It was first designed with 24 satellites when it went into operation in 1993, but ageing satellites dropped out of service as Russia's economic health declined. Only six satellites are now running; new satellites would bring the total up to nine. Galileo has the most momentum of the alternative satellite projects, and has sparked interest in countries outside Europe. Canada has been financially involved in the early stages of the project. Russia has lent technical expertise and is looking for a bigger role. China has shown a strong desire to participate. And other countries, including Israel, India, South Africa and Australia, have expressed interest. The United States has promoted G.P.S. as a global standard. In addition to its military and transportation applications, G.P.S. is used because it provides a relatively inexpensive and highly accurate time signal for synchronisation. The time synchronisation is used in networks like power grids, telecommunications and banking. Disruption in G.P.S. would cause those networks to slow down, but not necessarily fail. Galileo arose from Europe's concerns about falling behind the United States technologically. At an estimated cost of 3.6 billion euros (about $3.16 billion) for design and deployment, Galileo would be the most significant infrastructure project by the European Union to date. In the long run, the European Union envisions Galileo as a private-public partnership. But some question the economic wisdom of spending billions of euros, expecting private support and then charging for a certified signal when the G.P.S. signal is free, reliable and a world-wide standard. "*Galileo is a very confusing system, at least to my American mind*," said Pete Brumbaugh, a spokesman for Garmin International, which makes G.P.S. receiving equipment. "*There is already this really equitable system. There are already receivers that provide incredible accuracy to users world-wide*." An independent study released by PricewaterhouseCoopers last week, however, predicted that Galileo would have considerable economic benefits. Europe also wants a larger share of the billions of dollars made in maintaining and making satellite navigation equipment. Right now that business is dominated by the United States and Japan. The European Union says that the United States cannot guarantee the reliability and availability of the G.P.S. civilian signal, as United States national security needs could potentially trump any other needs. In contrast, Galileo proposals describe a free public signal as well as certified services available for governments or paying subscribers. Analysts see an advantage to having a system separate for G.P.S. in case of any sort of disruption. "*It provides a lot more accessibility, redundancy, robustness*," said Glen Gibbons, editor of GPS World, a satellite navigation trade publication. The emphasis on homeland defense since Sept. 11 has increased support for redundant satellite systems, Mr. Oosterlinck said. The G.P.S. system, which gained prominence during the Gulf War, was originally developed for the United States military. The system was made available for public use in 1993, with a separate, intentionally degraded civilian signal that provided less accurate positioning as a built-in obstacle to anyone using the system for criminal or rogue purposes. Last year, however, the United States stopped degrading the civilian signal because advances in technologies like jamming now allow the military to selectively interfere with signals wherever it wants to for instance, in arenas of armed combat like Kosovo or Afghanistan. On Sept. 17, the United States reiterated that it had no future intention of degrading the public signal. But these statements have only slightly soothed international concerns. Minor friction has emerged between the United States and Europe over the development of Galileo, and American officials have expressed scepticism about the relative costs and benefits of the project. As Galileo continues to move forward, the United States has voiced concerns about trade, security and technology standards. The last diplomatic meeting on Galileo and G.P.S. took place in late October. At the meeting, the two sides began serious discussions about the text of fundamental principles for Galileo, said Ralph Braibanti, head of the Galileo and G.P.S. negotiating team for the State Department. Some officials in the Defense Department are concerned about an independent satellite system that could erode their military advantage. While it is co-operating in creating shared standards, the United States has insisted that Galileo not interfere with the parts of the spectrum used for American military signals. In addition, the United States government fears Europe may impose regulatory restrictions that give European industry technological advantages over its American counterpart. As an example of such past regulations, American officials point to a proposed restriction on jet engine mufflers, called hushkits, which was seen as an attempt to protect European aviation industries by disproportionately affecting American aircraft and equipment manufacturers. Another technology developed under the American military which has since passed into wide international use is the Internet. But whereas G.P.S. is strictly under American control, the Internet was intentionally designed with no central authority. The ultimate implications of Galileo will only be sorted out in the minutiae of negotiations. Politicians, industry executives and trade representatives are wrangling over what type of institutions and structures should manage a dual-use technology that transcends borders and oceans. "*It really is a global utility and it's a new one*," said Mr. Gibbons, of GPS World. "*People are still trying to get their minds around what it all means*."

Technical report: IHUG increasing thruput

PanAmSat 2 NZ users. On the 4th of December 2001 at 0500hrs NZDT Ihug will be altering settings to the satellite carrier, which is used for high-speed connection. As a result of these changes users will be required to change the frequency and symbol rate settings of your computer. The new settings are:

Frequency: setting: 12489 MHz (currently 12490 MHz)
Symbol rate setting: 11.111 MSym (currently 9.63 MSym)

And our island-in-the-sun "hope springs eternal" reports

The tiny Pacific island of **Niue** intends to launch a geostationary communications satellite that it hopes will earn millions of dollars for this country of only 1,600 persons. Prime Minister Sani Lakatani said the satellite project is part of a grand plan to have American-based partners launch the satellite and station it in a position approved by the International Communications Union. The five-year project is estimated to cost around US$300 million with funding from American investors. Lakatani said the project will not cost Niue anything Call centres to be staffed by half the nation's 400 civil servants would be established on Niue to receive satellite communications. Lakatani said his IT adviser in the United States was talking to people about the project, and he was soon to receive a report from this as yet unnamed adviser. He said the intention was to lease out the Niue satellite. Niue expects to receive 35 percent of the profit derived from the satellite's use.

And, a plan by **Tonga's** bachelor crown prince to sell his kingdom the world's fastest Internet service has crashed, one of the key contractors has confirmed. Eccentric Crown Prince Tupouto'a, 53, had swapped playing with toy soldiers to set up a wireless phone and Internet service which he had promised would be up to eight times faster than anywhere else in the world. As part of the deal his local company, Shoreline Communications, signed a deal with Singapore's Datacraft Asia for more than $US10 million ($A19.5 million) to build a high speed digital network. But a spokeswoman for Datacraft in Singapore reported, "*The project has been cancelled*". They would not provide a reason. The Tongan Government did not respond to requests for comment on the issue. Tupouto'a, who is set to take the throne when ailing King Taufa'ahau Tupou IV, 82, dies, has been engaged in an increasingly bitter commercial battle with his sister, Princess Pilolevu Tuita, who controls the satellite communications company Tongasat. She recently revealed that Tongasat had moved from leasing out equatorial satellite slots to actually owning its own satellites. Tonga has a colourful history of projects that failed even before they got off the ground. These included buying into a bogus Korean plant to turn sea water into natural gas, nuclear waste and old tyre storage and more recently, a failed multimillion dollar investment on insurance on terminally ill Americans. That saw Tonga lose around $US20 million ($A39 million) in a scheme dreamed up by the king's official court jester, American Buddhist Jesse Bogdonoff. He is also involved in Tupuoto'a Internet scheme although it is not entirely clear what he was doing with it. Shoreline, Tupuoto'a and Bogdonoff were to have run a company called Tonfon which was to have run a wireless phone service in competition against the state owned Tonga Communications Corporation. Tupouto'a had sung the democratic potential of the Internet he was going to offer. "*It will provide liberation for the common man greater than that originally given him by the automobile*." Tonga, a chain of 45 inhabited islands north of New Zealand, has a per capita gross national product of $US1263 ($A2456) and is largely dependent on remittances from thousands of Tongans abroad and pumpkin exports to Japan. An estimated 67,000 of the kingdom's 100,000 people live on the southern island of Tongatapu, which hosts the capital Nuku'alofa.

This is issue # 83 - #91 will be our last

This completes CTD for 2001 - all 10 issues. As announced in November, this publication will cease with issue #91 on or about 1 August 2002. Renewal notices taking you to and including issue 91 have been adjusted to reflect the exact number of issues to be printed before this publication becomes history. New subscriptions entered at this time are for the remaining issues to be produced only. Our companion "SatFACTS Monthly" magazine will continue to be issued even after CTD is no longer published.